REMARKS

This Application has been carefully reviewed in light of the Office Action mailed August 12, 2004. To advance prosecution of this application, Applicant has responded to each notation by the Examiner. Applicant submits that all of the claims are allowable over the cited references. Applicant respectfully requests reconsideration, further examination, and favorable action in this case.

Information Disclosure Statement

Applicant notes for the Examiner's convenience that an Information Disclosure Statement is being filed concurrently with this Response. The Information Disclosure Statement contains the reference identified as item AD on page 8 of the Information Disclosure Statement filed on 7/25/03. Applicant notes that Applicant performed a reasonable search for the reference identified as item AC on page 8 of the Information Disclosure Statement filed on 7/25/03 ("*the AC reference*"), but was unable to locate *the AC reference*. Applicant will submit an additional Information Disclosure Statement at a later date containing *the AC reference* if Applicant is able to locate such reference. Applicant respectfully requests that the Examiner confirm in his next written communication that the Examiner has considered Applicant's Information Disclosure Statement.

Claim Rejections – 35 U.S.C. §103

The Examiner rejects Claims 1-7, 9, 11-16, 18, 20-22, 24-27, and 29-30 under 35 U.S.C. § 103(a) as being unpatentable over an article titled "Wavelength Division Multiplexing in Long-Haul Transmission Systems," by Bergano et al. ("*Bergano*"), in view of U.S. Patent No. 5,905,838 issued to Judy ("*Judy*"). The Examiner also rejects Claims 8, 10, 17, 19, 23, and 28 under 35 U.S.C. § 103(a) as being unpatentable over *Bergano* in view of *Judy*, and further in view of U.S. Patent No. 6,191,877 issued to Chraplyvy ("*Chrapylvy*"). Applicant respectfully traverses these claim rejections for the reasons discussed below.

To defeat a patent under 35 U.S.C. § 103, "the prior art reference must teach, disclose, or suggest all the claim limitations." *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991); M.P.E.P. § 706.02(j). Applicant respectfully submit that neither *Bergano* nor *Judy*, taken alone or in

combination, teach or suggest, either expressly or inherently, a number of elements of independent Claims 1, 11, 20, and 26.

Applicant submits that Claim 1 is patentable over *Bergano* in view of *Judy*. Among other features, Claim 1 recites, in part, "a transmission line having at least a first zero dispersion wavelength λ_{01} and a second zero dispersion wavelength λ_{02}, the transmission line operable to transmit an optical signal comprising a wavelength λ, the transmission line including a Raman gain medium that amplifies the optical signal through Raman gain."

At the outset, Applicant notes that the Examiner has not cited language in either reference or within information commonly known to those skilled in the art that provides the necessary motivation or suggestion to combine these two references. The M.P.E.P. sets forth a strict legal standard for finding obviousness based on a combination of references. According to the M.P.E.P., "Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge [that was] generally available to one of ordinary skill in the art" at the time of the invention. M.P.E.P. 2143.01. The "fact that references can be combined or modified does not render the resultant combination [or modification] obvious unless the prior art also suggests the desirability of the combination" or modification. *Id.* (emphasis in original).

The governing Federal Circuit case law makes this strict legal standard even more clear.[1] According to the Federal Circuit, "a showing of a suggestion, teaching, or motivation to combine . . . prior art references is an essential component of an obviousness holding." *In re Sang-Su Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002) (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25 (Fed. Cir. 2000)). "Evidence of a suggestion, teaching, or motivation . . . may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, the nature of the problem to be solved." *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). However, the "range of sources available . . . does not diminish the requirement for actual evidence." *Id.* In *In re*

1 Note M.P.E.P. 2145 X.C. ("The Federal Circuit has produced a number of decisions overturning obviousness rejections due to a lack of suggestion in the prior art of the desirability of combining references.").

Dembiczak, the Federal Circuit reversed a finding of obviousness by the Board of Patent Appeals and Interferences, explaining that proper evidence of a teaching, suggestion, or motivation to combine is essential to avoid impermissible hindsight reconstruction of an applicant's invention:

> Our case law makes clear that the best defense against the subtle but powerful attraction of hind-sight obviousness analysis is *rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references*. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.

175 F.3d at 999 (quoting *W.L. Gore & Assoc., Inv. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983)) (emphasis added) (citations omitted).[2]

The Examiner asserts without support that it "would have been obvious" to make the proposed combination to "use the dispersion-managed line of *Bergano* [in the metro-optic system of *Judy*] for the advantage of minimizing the deleterious effect of dispersion on the transmission signal." *Office Action at 2*. Contrary to this assertion, *Judy* teaches away from combining or modifying its system with the transmission line of *Bergano* by *Judy's* derogation of the conventional single mode fiber and the dispersion shifted fiber implemented in *Bergano*. In particular, *Judy* states that "As seen from curve 12, unshifted [or conventional] single-mode fiber (USF) has too low a dispersion at 1310 nm to allow WDM and too high a dispersion at 1550 to allow high speed transmission without the use of external dispersion compensation. Similarly, from curve 13, NZF [non-zero fiber] dispersion is too large at 1310 nm, and the particular commercial product (TrueWave), plotted, has too low a dispersion, even for operation in the range of 1540-1480 nm, within the 1550 nm window. Furthermore, both fiber types are limited in their operating windows by a large dispersion slope that limits usable bandwidth to a relatively narrow band of wavelengths within the desired dispersion range of 1.0-8.0 ps/nm-km." *See e.g., Col. 6, Lines 43-56*. Thus, *Judy* teaches that the transmission fibers of *Bergano* are not suitable for use in *Judy's* dual optical window system and, therefore, teaches away from the use of such fiber types.

---

2 *See also In Re Jones*, 958 F.2d 347, 351 (Fed. Cir. 1992) ("Conspicuously missing from this record is any evidence, other than the PTO's speculation (if that can be called evidence) that one of ordinary skill in the herbicidal art would have been motivated to make the modification of the prior art salts necessary to arrive at" the claimed invention.).

Moreover, combining the transmission line of *Bergano* with the dual operating window system of *Judy* would result in a system that would not function as intended by *Judy*. The *Judy* reference discloses a specific type of fiber called the "MetroWave" fiber that has a zero dispersion wavelength of about 1400 nm and permits operation in both the 1310 nm window and the 1550 nm window. *See e.g., Col. 6, Lines 57-61*. While *Judy* discloses one definition of "dispersion compensation" at column 4, lines 37-48, it apparently does so for the purposes of illustrating that the "MetroWave" was designed toward avoiding the use of other sources of dispersion compensation. For example, contrasting its approach with others, *Judy* explains that by using its "MetroWave" fiber in a transmission line, there is no need for additional dispersion compensation. Instead, "The new fiber has a needed dispersion — here specified as of absolute magnitude between 1-8 ps/nm-km, now in regions of both windows." *See e.g., Col. 6, Lines 19-22* (emphasis added). *Judy* touts that "The MetroWave fiber offers high-capacity system operation without need for the dispersion compensation required for dual window operation — particularly for dual window WDM operation — with NZF or USF." *See e.g., Col. 12, Lines 40-42* (emphasis added). Moreover, *Judy* achieves operation in both the 1310 nm and 1550 nm windows by shifting the zero dispersion wavelength of the transmission fiber to approximately 1400 nm. Shifting the zero dispersion wavelength of the transmission fiber to approximately 1400 nm allows the MetroWave fiber to introduce an absolute magnitude of between 1-8 ps/nm-km.

As discussed above, the system in *Judy* operates in both the 1310 nm and 1550 nm operating windows and requires the use of a specific type of fiber called the "MetroWave" fiber for use as the transmission line within its system. The "MetroWave" fiber has one zero dispersion wavelength of 1400 nm, has a specified dispersion level (e.g., an absolute magnitude between 1-8 ps/nm-km) in both the 1310 nm and 1550 nm operating windows, and seeks to avoid the use of any additional dispersion compensation within the system.

In contrast with the "MetroWave" fiber disclosed in *Judy*, the transmission line in *Bergano* only operates in the 1550 nm operating window and requires the use of an additional transmission medium that does dispersion compensation or dispersion management. The transmission line in *Bergan* accomplishes this dispersion management by concatenating a dispersion shifted fiber or non-zero fiber having a zero dispersion wavelength of 1585 nm

and a negative sign of dispersion to a conventional or unshifted single mode fiber having a zero dispersion wavelength at 1310 nm and a positive sign of dispersion. As discussed above, one of the purposes of implementing the "MetroWave" fiber in *Judy* is to avoid the use of any additional dispersion compensation of the type disclosed within *Bergano*. Where a proposed modification would render the resulting system unsuitable for its intended purpose or inoperative, there is no suggestion to make the modification, and the combination of references is improper.

Furthermore, the Examiner has failed to cite to a reference or to knowledge generally available to those of ordinary skill in the art at the time of the invention providing any suggestion or motivation to combine and/or modify *Judy* or *Bergano* in any way. It appears that the Examiner is improperly using the Applicant's disclosure as a blueprint for piecing together various elements of *Bergano* and *Judy*. As provided above, the mere fact that references can be combined does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills,* 916 F.2d 680 (Fed. Cir. 1990). Thus, the mere fact that the teachings of one reference would improve the teachings of another reference as asserted by the Examiner does not provide the required suggestion to combine. The showing must be clear and particular. *See, e.g., C.R. Bard v. M3 Sys., Inc.*, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998). Without such independent suggestion, the art is to be considered as merely inviting unguided and speculative experimentation which is not the standard with which obviousness is determined. *Agmen Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200 (Fed. Cir. 1991). The Examiner has presented no evidence, however, that suggests or motivates the combination. It is improper for the Examiner to use hindsight having read the Applicant's disclosure to arrive at an obviousness rejection. *In re Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988).

Consequently, a *prima facie* case of obviousness cannot be maintained with respect to Claim 1, as the Examiner has not show the requisite proof necessary to establish a suggestion or motivation to combine the cited references.

For at least these reasons, Applicant submits that *Bergano* and *Judy*, taken alone or in combination, fail to teach or suggest Claim 1. Applicant respectfully requests withdrawal of the rejection and full allowance of independent Claim 1 and all claims depending therefrom.

Applicant submits that independent Claims 11, 20, and 26 are patentable over *Bergano* in view of *Judy* for at least the reasons discussed above. Thus, Applicant respectfully requests withdrawal of the rejection and full allowance of Claims 11, 20, and 26, and all claims depending therefrom.

No Waiver

All of Applicant's arguments are without prejudice or disclaimer. Additionally, Applicant has merely discussed example distinctions from the *Bergano* and *Judy* references. Other distinctions may exist, and Applicant reserves the right to discuss these additional distinctions in a later Response or on Appeal, if appropriate. By not responding to additional statements made by the Examiner, Applicant does not acquiesce to the Examiner's additional statements. The example distinctions discussed by Applicant are sufficient to overcome the obviousness rejections.

CONCLUSION

Applicant has made an earnest attempt to place this case in condition for allowance. For the foregoing reasons, and for other reasons clearly apparent, Applicant respectfully requests full allowance of all pending Claims.

Applicant believes that no fees are due. However, the Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

If the Examiner feels that a conference would advance prosecution of this Application in any manner, Douglas M. Kubehl stands willing to conduct such a telephone interview at the convenience of the Examiner. Mr. Kubehl may be reached at 214-953-6486.

Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Applicant

Douglas M. Kubehl
Reg. No. 41,915

Correspondence Address:

Customer No. **05073**

Date: November 12, 2004